

REMARKS/COMMENTS

The Amendments

Claims 1-6 have been cancelled and claims 7-10 substituted therefor. New claims 7-10 more particularly point out and distinctly claim the subject matter Applicant regards as the invention and provide antecedent basis found lacking in the original claims. The new claims are supported throughout the specification. In particular, new claim 7 is supported by original claims 1 and 2, pages 3-5 and elsewhere in the specification, and at Fig. 1 and by Example 1. New claim 8 is supported in particular at page 5 of the specification. New claim 9 is supported at pages 3-6 of the specification and Fig. 1, and new claim 10 is supported at pages 3-6 and 13 of the specification.

Applicant respectfully submits that these claims add no new matter to the application and earnestly solicits entry thereof.

The Office Action

Claims 1-6 were pending in the application.

Claims 3-5 were objected to for various informalities relating to lack of antecedent basis. The specification also is identified as objected to at box 9 on the Office Action Summary. However, in a telephone conference, the Examiner stated that this was a typographical error, and that there are no objections to the specification.

Claim 1 was rejected under 35 U.S.C. § 102(b) as anticipated by Bernstein, United States Patent Number 6,066,295. Claims 2-6 were rejected under 35 U.S.C. § 103(a) as unpatentable (obvious) over Bernstein in view of Dahl, United States Patent Number 5,298,905. Dahl is said to provide that which is lacking from Bernstein.

The Office Action did not acknowledge the claim of foreign priority or receipt of any documents relating thereto.

The Invention

The invention is directed to a remote particle counter in a radar apparatus for remote measurement of a number and size distribution of suspended fine particles in the atmosphere. The counter comprises a system that controls the system and measures and analyzes data; a pulsed laser generator; laser beam emitting optics; scattered light collecting optics, and a high-sensitivity two-dimensional photo detector having a fast gating capability.

Under the direction of the control system, the pulsed laser generator emits pulsed laser light having a wide beam spread through the emitting optics toward a target area. Backward scattered light from fine particles in the target area is collected by the scattered light collecting optics and picked up by the high-sensitivity photo detector. The detector is controlled by the system to measure the number and size distribution of the fine particles. The direction of the laser emission and the delay time from the laser emission, as determined by the fast gating of the photo detector are used to determine the number and size distribution of fine particles in the target area.

The Cited Art

Bernstein is directed to a method and device for remotely analyzing an agent in the atmosphere or in a body of water. A reagent that interacts with the agent to be identified is dispersed into the agent to produce changes in the electromagnetic signature of the region occupied by the agent. For example, the interaction could be a chemical reaction or a physical reaction, including change in size or phase of the agent being determined. Chaff and other signal-increasing agents also can be added. Lasers or other electromagnetic emitters are used to

send a signal, and a return system collects the returning light. The return is analyzed to identify the target agent by determining the electromagnetic absorption of the agent at at least two frequencies, one of which is affected by the change with the interaction of the reagent with the agent. Pattern matching is used to identify the agent.

Dahl is directed to a detection apparatus comprising a visible light output signal over a first field of view, and a photodiode having a second field of view that at least partially overlaps the first field. The apparatus is used to detect the presence of objects, and can be used for ranging.

The Invention In View Of The Cited Art

Applicant respectfully traverses the rejections. The cited art neither suggests nor discloses the claimed invention, whether considered alone or in combination.

The claimed invention is a remote particle counter. The counter determines the number and size distribution of fine particles suspended in a target area. Neither Bernstein nor Dahl suggests or discloses the claimed invention, and the proposed combination does not suggest the claimed invention.

Bernstein discloses that a reagent be introduced into the volume containing the agent under investigation for the purpose of changing the electromagnetic signal returned from the volume in view of a chemical or physical change cause by reaction of the reagent with the agent. Responses at two frequencies are measured, one of which frequencies is chosen because it changes with the reaction. Pattern matching is used to identify the agent. Bernstein is silent with regard to features directed to determination of particle number and size.

Dahl discloses a system to determine the presence of an object, but, like Bernstein, is silent with regard to features directed to determination of number and size of particles in, for example, an aerosol. Therefore, Dahl cannot provide that which is lacking from Bernstein.

Additional Formality

Applicant requests that the Examiner acknowledge the claim of foreign priority and receipt of the priority documents.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance. The cited art neither suggests nor discloses the claimed invention. Informalities in selected claims have been corrected in the new claims. Applicant earnestly solicits favorable action.

Respectfully submitted,

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